TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

HIGH ACTIVITY HEPA FILTER CHANGEOUT AT 324 BUILDING

Identification No.: RL-DD087
Date: November 2001

Program: 300 Area Facility Transition
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-RC06
Waste Stream: Radioactively contaminated HEPA filters
TSD Title: N/A
Operable Unit (if applicable): N/A
Waste Management Unit (if applicable): N/A
Facility: 324 Building

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" Priority:

_X_ 1. Critical to the success of the ACPC
____ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
____ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: High Activity HEPA Filter Changeout at 324 Building

Need/Opportunity Category: *Technical Opportunity* – The Site desires an alternative to the current baseline technology.

Need Description:
A remote method is needed to remove the high-dose, radioactive HEPA filter assembly from the exhaust system in the 324 Building. The filter assembly is approximately 4-ft (L) x 4-ft (W) by 7-ft (H) and weighs approximately 250 pounds.

Disposition of an A-Frame HEPA, located down steam from B-cell, presents several technical challenges due to limitations on existing cranes, high Curie loading, and size. Remotely deployable equipment will be necessary to minimize personnel exposure. The existing 30-ton overhead crane is unable to be positioned over the center of the concrete cover blocks; a specialized lift-centering device or hoisting system will be necessary. Special shielding and possibly remote/robotics will be needed for waste handling and stabilization, and the oversized nature of the filters will require a non-standard shielded container.

Schedule Requirements:

Earliest Date Required: (10/01/02)
Latest Date Required: (09/30/05)

Problem Description: The A-frame HEPA filter assembly is located in a filter pit covered by a 3-ton cover block. The filter assembly is designed to be contact-changed by craft personnel. Due to the high dose, however, a remote/manual removal and packaging device is required. Access to the center of gravity of the cover block and filter assembly by the available overhead crane has been compromised.

Potential Life-Cycle Cost Savings of Need (in $000s) and Cost Savings Explanation: Potential Cost savings are TBD at this time. Cost analyses can be performed once technology baseline and options are better established.

Benefit to the Project Baseline of Filling Need: Satisfaction of need will support ability to reach deactivation end states and provide readiness for D&D.

Relevant PBS Milestones:

TRP-06-921	324 Deactivation Complete	September 22, 2006

Functional Performance Requirements: The system must remove the cover block and withdraw the filter assembly into a shielded box. The shielded box must them be put into waste box for burial. Voids within the box must be filled with grout.

Work Breakdown Structure (WBS) No.: 1.04.10, 324/327 Buildings Stabilization/Deactivation

TIP No.: N/A

Justification For Need:

Technical: As facilities are transitioned to stable conditions and decommissioned, they require decontamination of radioactively contaminated materials.

Regulatory: Tri-Party Agreement Milestone M-89-00: Complete Closure of the Non-permitted MW Units of the 324 REC, HLV and LLV by October 2005.

Environmental Safety and Health: Radioactive contamination presents safety/exposure concerns.

Cultural/Stakeholder Concerns: Decontaminating materials to free release can minimize the volume of material destined for onsite burial. This will help alleviate concerns expressed by stakeholder groups.

Other: None identified.

Current Baseline Technology: None -- situation represents unique challenges.

End-User: EM-40

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